

Varicella-Zoster Virus Reactivation and Immune-Mediated Inflammatory Disease: A Case of Reactive Arthritis Following Shingles in a Vaccinated Older Adult

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Abstract

We present the case of a 78-year-old retired anaesthetist who developed seronegative inflammatory polyarthritis shortly after a mild episode of herpes zoster reactivation. Despite prior zoster vaccination and a non-painful dermatological presentation, the patient experienced severe functional impairment due to symmetric joint swelling and stiffness. Laboratory investigations showed markedly raised inflammatory markers, with negative rheumatoid factor. The case highlights the potential for post-zoster immune-mediated arthritis, even in vaccinated individuals, and underscores the need for awareness of atypical viral complications in older adults.

Introduction

Varicella-zoster virus (VZV) reactivation is most commonly associated with localized dermatomal pain and rash, followed by post-herpetic neuralgia in some individuals. Rarely, VZV may trigger immune-mediated complications such as vasculitis, cerebellitis, or inflammatory arthritis. Reactive arthritis following herpes zoster has been documented in a limited number of case reports and may mimic seronegative rheumatoid arthritis. This case contributes to the evolving understanding of VZV-related immune dysregulation, especially in the post-vaccination era.

Case Description

Patient: Dr. Farzin Rahmani Shirazi, male, born 20 October 1946 (78 years old), retired anaesthetist, UK.

Medical History:

- Childhood varicella (chickenpox)
- Zoster vaccination (Zostavax): 8 January 2018

- No history of inflammatory arthritis or autoimmune disease

Timeline of Events:

- Mid-March 2025: Developed an itchy, blistering rash localized to the anterior right thigh (L2 dermatome). Rash was non-painful and resolved without antivirals.
- Few days later: Rib pain followed by swelling and stiffness in both wrists (left worse), both shoulders, and left knee.
 - Grip strength significantly reduced (e.g., unable to squeeze toothpaste).
 - Marked disruption of daily functioning and sleep.

Clinical Assessment:

- 17 March 2025: GP diagnosed inflammatory arthritis; prescribed NSAIDs + PPI. Imaging and blood tests planned if no improvement.

Laboratory Investigations (8 April 2025):

- CRP: 99.4 mg/L (↑ Markedly elevated)
- Albumin: 28 g/L (↓ Low)
- Urea: 10.4 mmol/L (↑ Mild elevation)
- Platelets: Elevated
- Eosinophils: Elevated
- Basophils: Elevated
- Rheumatoid Factor: <7 IU/mL (Negative)

Functional Impact:

- Impaired activities of daily living (e.g., dressing, brushing teeth)
- Poor sleep due to pain and stiffness
- Persistent fatigue and weakness

Discussion

Reactive arthritis (ReA) is typically associated with enteric or urogenital infections but may follow viral triggers. In this case, the temporal proximity between VZV reactivation and the onset of polyarthritis, in the absence of another identifiable cause, strongly supports a diagnosis of post-zoster inflammatory arthritis. The presentation was symmetrical, seronegative, and predominantly involved large joints and upper extremities — mimicking early rheumatoid arthritis.

Several reports have described similar patterns. Zhang et al. (2016) and Sene et al. (2011) report seronegative RA-like symptoms following shingles in older adults. Vassilopoulos et al. (2011) highlighted that such arthritis is often self-limiting but can be functionally disabling. The absence of post-herpetic neuralgia in this case — combined with the lack of classic RA markers — makes the inflammatory trigger rather than autoimmune disease more likely.

Interestingly, the patient had been vaccinated against herpes zoster with Zostavax. While the vaccine reduces the incidence and severity of shingles, breakthrough reactivation still occurs, especially with advancing age and immune senescence.

The elevated CRP and thrombocytosis confirm systemic inflammation. Negative rheumatoid factor, absence of joint erosions (pending imaging), and acute onset support a reactive or post-viral etiology rather than primary RA.

Further investigations — including anti-CCP, ANA/ENA panel, HLA-B27 typing, and imaging — are needed to fully exclude evolving connective tissue disease or other rheumatological pathology. Given ongoing symptoms, a short course of corticosteroids or early rheumatology referral may be warranted.

Conclusion

This case illustrates a rare but important complication of herpes zoster — reactive seronegative inflammatory arthritis — in a vaccinated older adult. It emphasizes the importance of recognizing atypical post-viral immune responses and considering them in the differential diagnosis of new-onset inflammatory arthritis. Clinicians should remain vigilant, particularly as vaccinated populations age and the clinical manifestations of VZV evolve.

Consent

The patient in this case is also the author and has provided full informed consent for the publication of personal medical details.

References

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